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Rubella Immunization Programs

Much comment, criticism and reaction have recently appeared on television and in newspapers on the statewide rubella campaign. Some of this has represented honest, concerned discussion of the new vaccine. Some of this, unfortunately, has been the attempted promulgation of some false information. The following presents the current known facts about the safety of the rubella vaccine. For further information, one may refer to the two-issue Symposium on Rubella Immunization in the July and August issues (1969) of The American Journal of Diseases of Children, or to this office.

Non-contagiousness of the Vaccine Virus

Approximately 10,000 sero-negative susceptible children and women have been exposed to vaccinated children under conditions of close contact favoring contagion and of close clinical, virologic, and serologic observation. Virtually all of these studies were conducted in isolation from possible contact with wild rubella infections. In none of these 10,000 persons could transmission of vaccine virus be proven; and only one person is known to have sero-converted under these conditions. In this latter case, no virus could be isolated to prove vaccine virus transmission. If one accepts this one instance as the result of transmission, the risk of transmission is at least as low as 1:10,000; few investigators appear to accept sero-conversion alone as documented evidence of transmission.

Virus may be shed from the pharynx following immunization; this seems to be common knowledge. What is less well known is that the characteristics of this phenomenon differ greatly from natural rubella infections.

A. Recovery of Virus. In natural rubella infections virus can be recovered from pharyngeal swabs from 7 days before, to (occasionally) as late as 14 days after the onset of the rash. From 7 days before to 4 days after the rash onset, more than 90% of throat swabs taken will yield virus; during the several days around the rash onset, virtually 100% of patients will readily yield virus.

In vaccinees, only about 70% of persons will yield virus from throat swabs, at any time. Even during the most ideal period for virus recovery (10-20 days following vaccination) only about 1/3 of vaccinees will yield virus on a given day.

B. Titer. Studies have amply documented that on the average 100 times less virus is excreted from vaccinees than from natural rubella. Characteristically, this small amount is excreted from 4-8 days, as compared to the larger amount in natural rubella for two weeks or more.

C. Infectivity. Whereas natural rubella virus is highly infectious by the respiratory route, with attack rates of inoculated or exposed susceptibles approaching 100%, the attenuated vaccine rubella virus has almost completely lost this ability. Infection with vaccine virus rarely occurs in volunteers deliberately inoculated intranasally with large doses of attenuated virus.

In all respects, the attenuated rubella virus differs very significantly from the wild or natural rubella virus. The accumulated evidence documents and probably explains the lack of infectiousness following immunization. While the theoretical possibility of transmission to susceptible contacts cannot be entirely discounted, it should be regarded as a risk of no practical importance. The facts do not justify hasty postponement or cancellation of scheduled clinics for this reason.

